

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of Parts 2 and 15 of the
Commission's Rules to Permit Use of
Radio Frequencies Above 40 GHz for
New Radio Applications

ET Docket No. 94-124
RM-8308

To: The Commission

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REPLY COMMENTS OF TRW INC.

TRW Inc. ("TRW"), by its attorneys and pursuant to Sections 1.415 and 1.419 of the Commission's Rules, hereby submits its reply comments in response to the Commission's Notice of Proposed Rule Making in the above-captioned proceeding, Amendment of Parts 2 and 1 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, 9 FCC Rcd 7078 (1994) ("NPRM").

I. The Comments Support Both The Allocation Of The 40.5-42.5 GHz Band To The LMWS, And The Relocation Of The Proposed LMDS From The 28 GHz Band To The LMWS Allocation At 40 GHz.

The comments that were filed in response to the NPRM reflect general support both for the allocation of the 40.5-42.5 GHz band to the proposed Licensed Millimeter Wave Service ("LMWS"), and for the establishment of a service regime that is patterned upon the one proposed in CC Docket No. 92-297 for application to what would be known as the Local Multipoint Distribution Service ("LMDS") in the

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27.5-29.5 GHz band.^{1/} Indeed, many of the commenters that supported the allocation of spectrum at 40 GHz to the LMWS also echoed TRW's call for the Commission to remove the proposed LMDS from the two gigahertz of spectrum at 27.5-29.5 GHz to the two gigahertz LMWS band at 40.5-42.5 GHz.^{2/}

The support for the relocation of the Commission's proposed LMDS service from the 28 GHz band to the 40 GHz band is what leaps out from the comments filed in response to the NPRM. Several of the parties supporting such a determination provided technical support for their assessments that the higher band is technically well-suited for "LMDS-type" services.^{3/} Others, including TRW, also questioned the economic viability of either the LMDS or the LMWS if the

^{1/} See NPRM, 9 FCC Rcd at 7087-89. See also Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service, 8 FCC Rcd 557 (1993) (Notice of Proposed Rule Making, Tentative Decision, and Order on Reconsideration) ("LMDS NPRM"); Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service, 9 FCC Rcd 1394 (1994) ("Second LMDS NPRM").

^{2/} See, e.g., Comments of GE American Communications, Inc. at 5; Comments of Teledesic Corporation at 10-11; Comments of Harris Corporation-Farion Division at 2-3; Comments of Hughes Communications Galaxy, Inc. at 3.

^{3/} See, e.g., Comments of the National Aeronautics and Space Administration at 5 ("[a]n examination of the design of a leading contender for LMDS proves conclusively that there is virtually no difference in the operation of LMDS at the higher frequency") (footnote omitted); Comments of Hughes Communications Galaxy, Inc., at Exhibits A and B.

Commission established redundant, capital-intensive video distribution services, with up to four new licensees per service area, on a near concurrent basis.^{4/} Even Endgate Technology Corp., which participated in the Negotiated Rulemaking Committee deliberations in CC Docket No. 92-297 as a representative of the LMDS industry, opined that comparable equipment could be available for the LMWS for a price differential that will "become insignificant" over time, and that there is a "distinct advantage" in terms of antenna requirements at the higher band that will have a strong impact in consumer and residential LMWS applications.^{5/}

Only CellularVision, which currently operates a single-cell system in New York, voiced adamant opposition to the relocation of LMDS to the 40.5-42.5 GHz band.^{6/} There are a number of pecuniary reasons why CellularVision alone, even among the LMDS interests that participated in the comment round, is resistant to the suggestion that the video distribution service proposed for the 28 GHz band should be established instead at 40 GHz. First, CellularVision's "affiliated company," Suite

^{4/} See Comments of TRW Inc. at 8-9.

^{5/} See Comments of Endgate Technology Corporation at 2. See also Comments of GHz Equipment Co., Inc. (a participant on the side of the LMDS interests during the Negotiated Rulemaking Committee deliberations in the CC Docket No. 92-297 proceeding, GHz Equipment Co. supports the allocation of spectrum in the 40 GHz band to LMWS).

^{6/} See Comments of CellularVision at 1-2. To be sure, one or two other parties also either opposed the relocation of LMDS to the 40 GHz band (see Comments of Texas Instruments, Inc. at 1) or on the grounds that the relocation might delay resolution of the proceeding in CC Docket No. 92-297 (see Comments of Comtech Associates, Inc.).

12 Group, has been tentatively awarded a pioneer's preference for the LMDS in the lower frequency band.^{7/} Because the Commission has not yet proposed to establish the LMDS at 40 GHz, CellularVision/Suite 12 face the prospect that they would lose a potentially guaranteed right to become a major market licensee of an LMDS system.

In addition, as CellularVision notes in its comments, another of its affiliated companies currently holds the sole license the Commission has issued to date in the service that would become the LMDS.^{8/} TRW recognizes that requiring this system to be removed to a new frequency band would be inconvenient; however, such relocations are becoming more common as the Commission struggles with ever-increasing demands for ever-more-scarce spectrum.^{9/} Thus, the mere fact that a single licensee may have to be relocated to alternative frequencies by the fixed-satellite and possibly terrestrial fixed service licensees that would gain access to the occupied

^{7/} See LMDS NPRM, 8 FCC Rcd at 565-66.

^{8/} See CellularVision Comments at 1 n.1.

^{9/} See, e.g., Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, Third Report and Order and Memorandum Opinion and Order, 8 FCC Rcd 6589 (1993); Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, Notice of Proposed Rule Making, FCC 95-39, slip op. at ¶ 11 (released January 31, 1995) (Commission proposes to require licensees of new mobile-satellite service systems in frequencies currently occupied by broadcast auxiliary facilities to pay to relocate those licensees to alternate frequencies, and then to pay to relocate the current occupants of the alternate spectrum to yet additional frequencies).

frequencies poses no impediment whatsoever to the relocation of the proposed LMDS to the 40 GHz band.

Finally, and as several commenters note with approval, the 40.5-42.5 GHz bands are being developed in Europe for the implementation of the Multipoint Video Distribution Service ("MVDS"). The MVDS is described as "the functionally equivalent version of LMDS,"^{10/} and, according to at least one commenter, systems are scheduled to begin operation in the 40 GHz band this year.^{11/} Though CellularVision challenges the utility of the higher band for LMDS-type services and attacks the commercial prospects of the MVDS,^{12/} it is a lone voice in the woods on this subject; its challenges fly in the face of the demonstrations made in the comments of several parties here, and run contrary as well to the considered actions of the European Conference of Postal and Telecommunications Administrations (which recommended the establishment of the MVDS at 40 GHz only after several years of study and analysis).

TRW continues to believe that the only way for the Commission to achieve all of the policy goals it has identified for the proposed LMDS is to move that service up to the 40 GHz band. Several other commenters representing a broad cross-

^{10/} See Comments of National Aeronautics and Space Administration at 5 (footnote omitted).

^{11/} See Comments of Hughes Communications Galaxy, Inc. at 13-14.

^{12/} CellularVision Comments at 7.

section of the satellite and potential LMDS/LMWS equipment manufacturing industries have confirmed TRW's assessment of the technical viability of an LMDS-type service in the higher frequency range, and no party other than CellularVision portends economic disaster.

In short, the comments filed in response to the NPRM, taken as a whole, provide tremendous support for the relocation of the proposed LMDS service from 28 to 40 GHz. The positive ramifications of such a determination for the potential users of spectrum in the 27.5-29.5 GHz bands (as well as the companion band at 17.7-19.7) from a public policy standpoint are profound, as applicants and licensees in several different types of satellite services have set their sights on spectrum in these bands for a variety of domestic and international mobile and fixed satellite services.^{13/} The ability of relatively unfettered satellite allocations in the 27.5-29.5 GHz band to contribute meaningfully and immediately to the continuing U.S. leadership in the satellite manufacturing and services industries, as well as to hasten the completion of a

^{13/} TRW rejects the assertion by some commenters that suggest that only providers of broadband satellite services would or should be able to benefit from the relocation of the proposed LMDS to the 40 GHz band. See, e.g., Comments of GE Americom at 2-3; Comments of Hughes Communications Galaxy, Inc. at 15. Clearly, the Commission is not in a position in the instant proceeding to determine the respective rights of the various satellite applicants, potential applicants, and licensees that are vying to use spectrum in the Ka-bands for satellite service or feeder links. This principle would apply with equal vigor to the assertions of those parties who would have the Commission remove the LMDS to the 40 GHz band only to make room for point-to-point fixed services. See, e.g., Comments of Telecommunications Industry Association at ii, 8-9.

truly global communications infrastructure are well documented. The Commission simply needs to take a step that both allows the satellite industry the opportunities it needs, and permits the proposed LMDS to develop in basically the same manner as it would if established at 28 GHz.

II. TRW Supports The Objectives Of Those Parties That Request A Set-Aside Of 50% Of The 40.5-42.5 GHz Band For Educational LMWS Uses, But Questions Whether The Proposals Would Constitute The Best Use Of The Limited Spectrum Resource.

Several parties filed comments in support of the proposed allocation to the LMWS at 40.5-42.5 GHz, but urged the Commission to set aside fully one-half of that allocation for educational and public service uses.^{14/} Under the similar proposals presented by several parties, one of the two spectrum blocks in each market would be reserved for educational use and insulated from auctions.^{15/} The other block would be available for commercial LMWS.

TRW agrees with the educational commenters that telecommunications systems in general are an integral part of modern education, and will play an increasingly important role in the coming years. Although TRW has no present intention to establish an LMWS system in its own right, it nevertheless questions the

^{14/} See, e.g., Joint Comments of Educational Parties (American Council on Education, *et al.*) at 6; Comments of Clarendon Foundation at 5.

^{15/} See, e.g., Comments of GHz Equipment Co., Inc. at 7-8.

feasibility and efficiency of reserving fully 50 percent of the spectrum for educational use. Given the capital intensive nature of developing an LMWS system that will cover the subject markets adequately, it is uncertain whether distance learning interests are well-enough capitalized to undertake such an endeavor in every market (whether MSA or larger). Of course, if an educational license holder does not intend to cover its entire market, there is a serious question as to the spectrum efficiency of the educational interests' proposal (and thus as to the public interest).

It would seem, then, that the better course of action for the Commission to pursue would be not to reserve 50 percent of the 40.5-42.5 GHz band for educational interests, but instead to take other, less drastic, measures to promote the use of LMWS facilities and capacity by educational and distance learning interests. In the alternative, TRW notes that one party proposed the allocation of the 56.2-58.2 GHz band to LMDS.^{16/} If a dedicated allocation to educational uses is to be made, this band may prove an attractive location. In any event, the 40.5-42.5 GHz band should be assigned to two commercial licensees per market, in order to maximize the service innovation and pricing benefits that are the hallmarks of a competitive marketplace.

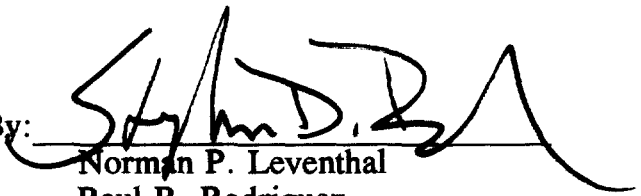
^{16/} See Comments of Hewlett-Packard Co.

CONCLUSION

For the reasons stated above and in its Comments, TRW urges the Commission to allocate the 40.5-42.5 GHz band to the LMWS for the provision a terrestrial fixed service that would be modeled after the proposed LMDS. TRW also urges the Commission to heed the call of TRW and many other commenters and relocate the proposed LMDS from 27.5-29.5 GHz to the new 40.5-42.5 GHz band.

Respectfully submitted,

TRW Inc.

By: 
Norman P. Leventhal
Raul R. Rodriguez
Stephen D. Baruch

Leventhal, Senter & Lerman
2000 K Street, N.W.
Suite 600
Washington, D.C. 20006

March 1, 1995

Its Attorneys

CERTIFICATE OF SERVICE

I, Katharine B. Squalls, hereby certify that a true and correct copy of the foregoing "Reply Comments of TRW Inc." was mailed, first-class postage prepaid, this 1st day of March, 1995 to the following:

Richard S. Wilensky, Esq.
Middleberg, Riddle & Gianna
2323 Bryan Street
Suite 1600
Dallas, TX 75201
Counsel for Comtech Associates, Inc.

Thomas E. Kilgo
Texas Instruments Incorporated
Post Office Box 650311
Dallas, TX 75265

John P. Janka, Esq.
Raymond B. Grochowski, Esq.
Latham & Watkins
1001 Pennsylvania Avenue, N.W.
Suite 1300
Washington, DC 20004
Counsel for Hughes Communications Galaxy, Inc.

Philip V. Otero, Esq.
Alexander P. Humphrey, Esq.
GE American Communications, Inc.
1750 Old Meadow Road
McLean, VA 22102

Charles T. Force
Associate Administrator
Office of Space Communications
National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001

Leonard R. Raish, Esq.
Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street
Eleventh Floor
Rosslyn, VA 22209
Counsel for Harris Corporation-Farinon Division

Stephen L. Goodman, Esq.
Melanie Haratunian, Esq.
Halprin, Temple & Goodman
1100 New York Avenue, N.W.
Suite 650
Washington, DC 20005
Counsel for Avant-Garde Telecommunications, Inc.

Robert J. Miller, Esq.
Gardere & Wynne, L.L.P.
3000 Thanksgiving Tower
160 Elm Street
Dallas, TX 75201-4761

Michael R. Gardner, Esq.
Charles R. Milkis, Esq.
Rafael G. Prohias, Esq.
The Law Offices of Michael R. Gardner, P.C.
1150 Connecticut Avenue, N.W.
Suite 710
Washington, DC 20036
Counsel for CellularVision

Douglas G. Lockie
Executive Vice President
Endgate Technology Corporation
321 Soquel Way
Sunnyvale, CA 94086

Ronald D. Maines, Esq.
Maines & Harshman, Chartered
2300 M Street, N.W.
Washington, DC 20037
Counsel for GHZ Equipment Co., Inc.

Rory L. Van Tuyl
Hewlett-Packard Laboratories
3500 Deer Creek Road
Palo Alto, CA 94304-1392

Ronald D. Maines, Esq.
Maines & Harshman, Chartered
2300 M Street, N.W.
Washington, DC 20037
Counsel for Clarendon Foundation

Linda C. Sadler
Manager, Governmental Affairs
Rockwell International Corporation
1745 Jefferson Davis Highway
Suite 1200
Arlington, VA 22202

George M. Kizer, Chairman
Dennis Couillard, Vice Chairman
Eric Schimmel, Vice President of TIA
Fixed Point-to-Point Communications Section,
Network Equipment Division of the
Telecommunications Industry Association
2500 Wilson Boulevard
Suite 300
Arlington, VA 22201

Todd D. Gray, Esq.
Kenneth D. Salomon, Esq.
Dow, Lohnes & Albertson
1255 Twenty-third Street, N.W.
Suite 500
Washington, DC 20037
Counsel for State of Wisconsin-Educational
Communications Board

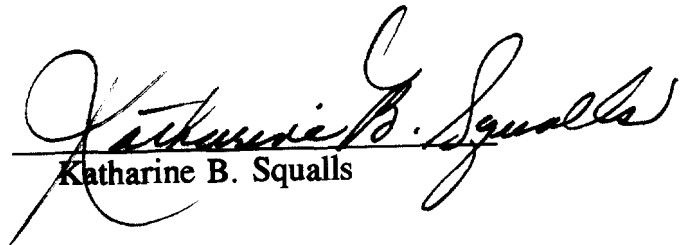
James P. Tuthill, Esq.
Betsy Stover Granger, Esq.
140 New Montgomery Street
Room 1525
San Francisco, CA 94105
Counsel for Pacific Bell Mobile Services Telesis
Technologies Laboratory

James L. Wurtz, Esq.
1275 Pennsylvania Avenue, N.W.
Washington, DC 20004
Counsel for Pacific Bell Mobile Services Telesis
Technologies Laboratory

Norman Wagner, Ph.D.
Dean, Distance Learning and Extended Academic Services
Troy State University Montgomery
P.O. Drawer 4419
Montgomery, AL 36103-4419

Tom W. Davidson, P.C.
Jennifer A. Manner, Esq.
Akin, Gump, Strauss, Hauer & Feld, L.L.P.
1333 New Hampshire Avenue, N.W.
Suite 400
Washington, DC 20036
Counsel for Teledesic Corporation

Peter B. Teets, President
Martin Marietta Space Group
6801 Rockledge Drive
Bethesda, MD 20817



Katharine B. Squalls